Brainstorm:

1) Definition of "force"

2) Examples of force

1) Something that works upon an obj.
   - Push or pull on an obj.
   - Mass times acceleration
   - pressure against an obj.
   - resistance → example
   - anything acting on an obj.
   - requires energy
   - magnetism → example

Definition: Action on an object that causes a change

2) Examples:
   - Magnetism
   - air resistance
   - thrust
   - gravity
   - lift
   - drag
   - applied
   - friction
   - electric
   - Centripetal
   - Strong nuclear
   - weak nuclear
   - normal
   - spring

Ways to Apply Force:

1. Contact

   Applied, Normal, Spring, Friction, Drag, Lift

2. Field

   Magnetism, Gravity, Strong, Weak, Electric

Newton's Laws:

1. "Inertia" Obj. in motion or at rest stays in motion or at rest unless acted upon by outside force

2. $\sum \bar{F} = m\bar{a}$ $\sum$ = sum of

   NET force

   - can be in a general direction, but usually we'll use x- and y-directions

3. Forces come in pairs

   equal in magnitude, opposite in direction

Types of Force Problems:

1. Equilibrium

$$\sum \bar{F} = \emptyset$$ (no acceleration)

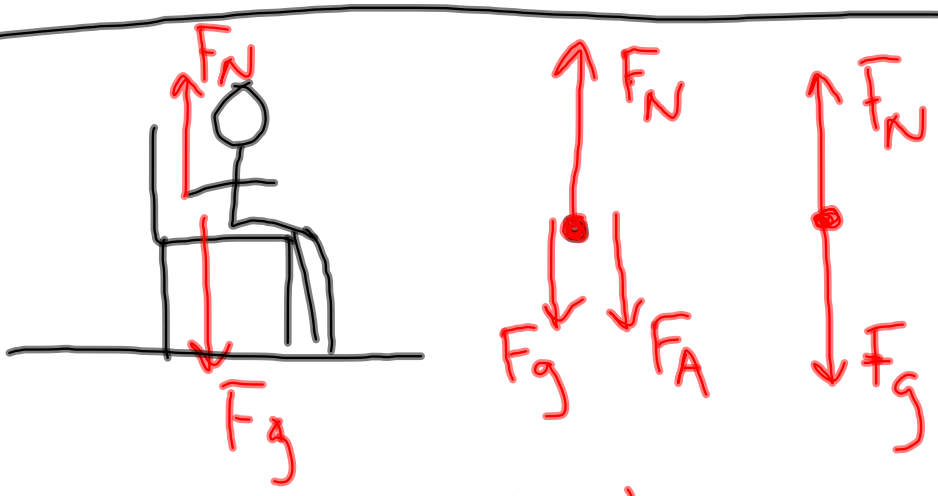
- happens when object is at rest or with constant velocity
- all forces on an object cancel out

2. Non-Equilibrium

$$\sum \bar{F} = m\bar{a}$$

- happens when an object is accelerating

Free-Body Diagrams (FBDs)



(chair) (Person)

Rules:

- Each object gets it own FBD